

PROJECT DESCRIPTION

I. GENERAL

This project involves the reconstruction of an existing Traffic Control Signal with street lighting and interconnect at the intersection of MD 32 (Sykesville Rd) and Burntwoods Road in Howard County. The reconstruction is due to intersection geometric improvements. MD 32 (Sykesville Rd) is assumed to run a north-south direction.

II. INTERSECTION OPERATION

- The intersection is to operate in a NEMA six-phase, fully-actuated mode, with the MD 32 (Sykesville Rd) approaches continuing to run concurrent. Exclusive/Permissive left turn phases shall now be provided for both approaches of MD 32 (Sykesville Rd). The Burntwoods Road approaches shall now run concurrently.
- A full-traffic-actuated, eight-phase controller with two (2) four channel, rack mount loop detector amplifiers and all necessary equipment housed in a NEMA size "6" base-mounted cabinet shall be installed at this intersection.

III. SPECIAL NOTES

- The Contractor shall be responsible for terminating all signal cables, excluding interconnect, to the appropriate terminals and shall properly label each cable.
- All controller cabinet wiring will be performed by the S.H.A. Signal Shop Contact Mr. Ed Rodenhizer at (410) 787-7650 seventy-two hours in advance of intended work.
- The proposed signal structures must be painted brown (Federal Standard Number 595a-20040 as described in the MSHA Special Provision for Painting New Galvanized Structures).
- All underground and overhead utilities shown on these plans are schematic only and may not be complete. The Contractor shall be responsible for notifying Miss Utility prior to construction so that all utilities may be located in the field. If the Contractor perceives that a conflict between the utilities and the traffic signal will occur, the Contractor shall notify the Project Engineer immediately so that the conflict may be resolved.

EQUIPMENT LIST

A. EQUIPMENT TO BE FURNISHED BY THE SHA
NONE

B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR

| SPEC. NUMBER | DESCRIPTION | QUANTITY |
|--------------|--|--|
| 814 | 12", one-way, three-section (R,Y,G) traffic signal head with adjustable bracket for mast arm mounting and tunnel visors. | 6 EA |
| 814 | 8", one-way, three-section (R,Y,G) traffic signal head with adjustable bracket for mast arm mounting and tunnel visors. | 2 EA |
| 814 | 12", one-way, five-section (R,Y,YA,G,GA) traffic signal head with adjustable bracket for mast arm mounting and tunnel visors. | 2 EA |
| 814 | Combination 8"-12", one-way, five-section (8"-R,Y,G) (12"-YA,GA) (left arrows) traffic signal head with adjustable bracket for mast arm mounting and tunnel visors. | 2 EA |
| | Eight-phase, full-traffic actuated, solid state digital controller with (2) 4-channel, rack mount loop detector amplifiers and detector rack power supply housed in a NEMA size "6" base-mounted cabinet | 1 EA |
| 205 | Test pit excavation. | 5 C.Y. |
| 801 | Furnish and install concrete for signal foundation. | 17 C.Y. |
| 813 | Ground mounted sheet aluminum signs to consist of: D3-2 (MOD) "(arrow) Burntwoods Road / Andrea Drive (arrow) / NEXT SIGNAL" (72"x36") ground mounted. D3-2 (MOD) "(arrow) Andrea Drive / Burntwoods Road (arrow) / NEXT SIGNAL" (72"x36") ground mounted. R1-2 "YIELD" (36"x36"x36") ground mounted. R3-7R "RIGHT LANE MUST TURN RIGHT" (30"x30") ground mounted. | 1 Each 1 Each 1 Each 2 Each |
| 813 | Overhead mounted sheet aluminum sign consisting of: D3-2 "(arrow) Andrea Dr / Burntwoods Rd (arrow)" (variable x 32") mast arm mounted. D3-2 "(arrow) Burntwoods Rd / Andrea Dr (arrow)" (variable x 32") mast arm mounted. M95-1 "Sykesville Rd." (W/GR) / "SOUTH (ARROW) MD 32 NORTH (arrow)" (BLK/W) (72" x 36") mast arm mounted. R3-5R "RIGHT TURN ONLY" sign, (30" x 36") mast arm mounted. R10-12 "LEFT TURN YIELD ON GREEN (BALL)" sign, (36" x 42") mast arm mounted. Raised pavement marker. | 96 S.F. 1 Each 1 Each 1 Each 2 Each 2 Each 10 Each |
| 556 | 5" white heat applied permanent preformed thermoplastic pavement marking | 1885 L.F. |

EQUIPMENT LIST (CONT.)

B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR

| SPEC. NUMBER | DESCRIPTION | QUANTITY |
|--------------|--|-----------|
| 556 | 5" yellow heat applied permanent preformed thermoplastic pavement marking | 1980 L.F. |
| 556 | 10" yellow heat applied permanent preformed thermoplastic pavement marking | 55 L.F. |
| 556 | 10" white heat applied permanent preformed thermoplastic pavement marking | 270 L.F. |
| 556 | 24" white heat applied permanent preformed thermoplastic pavement marking | 125 L.F. |
| 556 | Furnish and install heat applied permanent preformed thermoplastic pavement marking arrow, (right) | 2 EA |
| | Remove existing pavement markings | 900 L.F. |
| | Remove raised pavement marker. | 6 EA |
| | Macadam patch (to patch 300' of existing rumble strip) | LUMP SUM |
| 815 | Saw cut for signal (loop detector). | 420 L.F. |
| 805 | 1" galvanized steel electrical conduit (detector wire sleeve) | 10 L.F. |
| 805 | 1" liquid tight flexible non-metallic conduit for detector sleeve. | 30 L.F. |
| 805 | Furnish and install 3" schedule 80 rigid polyvinyl chloride conduit - trrenched | 1320 L.F. |
| 805 | Furnish and install 4" schedule 80 rigid polyvinyl chloride conduit - trrenched | 85 L.F. |
| 805 | Furnish and install 4" schedule 80 rigid polyvinyl chloride conduit - bored. | 360 L.F. |
| 811 | Furnish and install electrical handhole. | 11 EA |
| 810 | Furnish and install loop wire encased in flexible tubing (No. 14 AWG). | 1445 L.F. |
| 810 | Furnish and install electrical cable - 2 conductor (aluminum shielded). | 515 L.F. |
| 810 | Furnish and install 5-conductor electrical cable (No. 14 A.W.G.). | 120 L.F. |
| 810 | Furnish and install 7-conductor electrical cable (No. 14 A.W.G.). | 1640 L.F. |
| 810 | Furnish and install ground rod - 3/4" x 10'. | 5 EA |
| 810 | Furnish and install No. 6 AWG stranded bare copper ground wire. | 535 L.F. |
| 810 | Furnish and install tray cable - 2 conductor (No. 12 AWG) | 370 L.F. |
| | Relocate existing overhead or ground mounted sign | 1 EA |
| | Remove and dispose of existing signal equipment. | LUMP SUM |
| 812 | Furnish and install wood sign supports (4"x4"). | 50 L.F. |
| 812 | Furnish and install wood sign supports (4"x6"). | 70 L.F. |
| 806 | Furnish and install 250 watt HPS Luminaire with photocell. | 2 EA |
| 808 | Furnish and install 15' lighting bracket arm for traffic signal structure. | 2 EA |
| | Cut, clean and cap mast arm / steel pole. | 1 EA |
| | Remove and dispose of existing foundation 12" below grade. | 2 EA |
| 807 | Furnish and install control and distribution equipment (120/240 V, 1 phase 3 wire system). | 1 EA |
| | Furnish and install 27' steel pole (brown Fed Std 595a-20040) pole and 50' mast arm. | 1 EA |
| | Furnish and install 27' steel pole (brown Fed Std 595a-20040) pole and 50' (cut to 40') mast arm. | 1 EA |
| | Furnish and install 27' steel pole (brown Fed Std 595a-20040) pole and 70' mast arm. | 1 EA |
| | Furnish and install micro-loop with 1000' lead-in. | 2 EA |
| | Remove and dispose of lighting pole, arm and luminaire. | 1 EA |
| 810 | Furnish and install 5-conductor electrical cable (No. 10 A.W.G.). | 1080 L.F. |
| | Pull back Reroute existing interconnect cable. | 1660 L.F. |

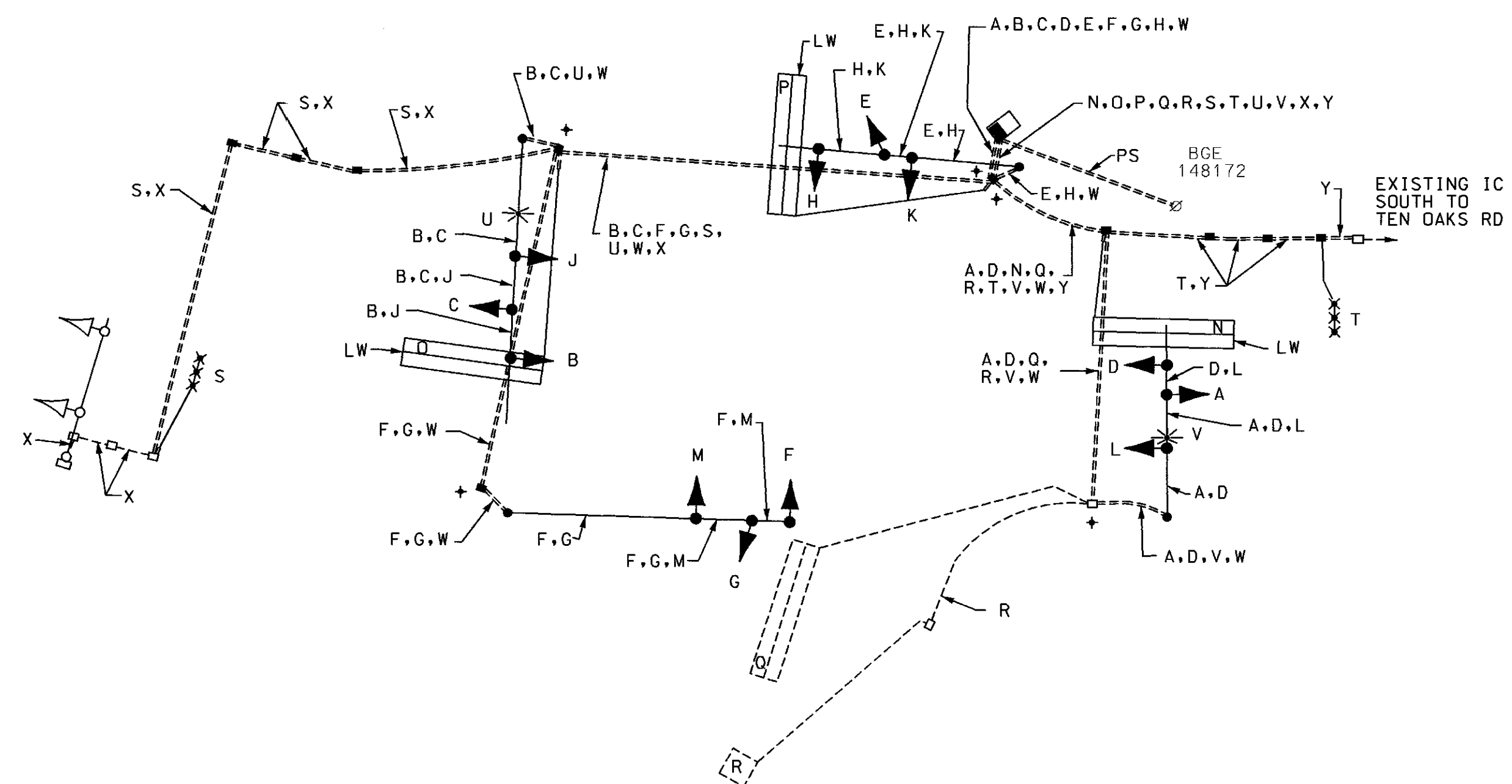
C. EQUIPMENT TO BE RETURNED TO THE SHA

All equipment to be removed shall become property of the contractor.

PHASE CHART

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|-------|-------|------|------|------|-------|-------|------|------|------|------|------|------|------|
| PHASE 1 & 5 | ←G-/R | ←G-/R | R | FL/Y | FL/Y | ←G-/R | ←G-/R | R | R | R | R | R | R | R |
| CHANGES TO PHASES 1 & 6, 2 & 5 OR 2 & 6 | | | | | | | | | | | | | | |
| PHASE 1 & 6 | ←G-/G | ←G-/G | G | FL/Y | FL/Y | R | R | R | R | R | R | R | R | R |
| 1 & 6 CHANGE | ←Y-/G | ←Y-/G | G | DARK | DARK | R | R | R | R | R | R | R | R | R |
| PHASE 2 & 5 | R | R | R | DARK | DARK | ←G-/G | ←G-/G | G | R | R | R | R | R | R |
| 2 & 5 CHANGE | R | R | R | DARK | DARK | ←Y-/G | ←Y-/G | G | R | R | R | R | R | R |
| PHASE 2 & 6 | G | G | G | DARK | DARK | G | G | G | R | R | R | R | R | R |
| 2 & 6 CHANGE | Y | Y | Y | DARK | DARK | Y | Y | Y | R | R | R | R | R | R |
| PHASE 4 & 8 | R | R | R | FL/Y | FL/Y | R | R | R | G | G | G | G | G | G |
| 4 & 8 CHANGE | R | R | R | FL/Y | FL/Y | R | R | R | Y | Y | Y | Y | Y | Y |
| FLASHING OPERATION | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/R | FL/R | FL/R | FL/R | FL/R | FL/R |

WIRING DIAGRAM



The contact persons for District #7 are as follows:

Mr. John Concannon
Assistant District Engineer - Traffic
Phone: (310) 624-8141

Mr. Dave Coyne
Assistant District Engineer - Maintenance
Phone: (310) 624-8106

Mr. Jim Buckalew
District Engineer - Utility
Phone: (301) 624-8110

Mr. Richard L. Daff, Sr.
Chief, Traffic Operations Division
Phone: (410) 787-7630

WIRING KEY

| | |
|--|--|
| 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.) | W - STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.) |
| 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.) | X - 5-CONDUCTOR ELECTRICAL CABLE (NO. 10 A.W.G.) |
| 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.) ALUMINUM SHIELDED | Y - EXISTING 12-PAIR VOICE GRADE INTERCONNECT CABLE TO BE PULLED BACK FROM EXISTING CABINET AND REROUTED INTO PROPOSED CABINET |
| MICROLOOP LEAD-IN CABLE (1000') | LW - LOOP WIRE (NO. 14 A.W.G.) |
| 2-CONDUCTOR TRAY CABLE (NO. 12 A.W.G.) | PS - PROPOSED UNDERGROUND SERVICE TO BE INSTALLED BY BGE |
| | + - GROUND ROD |



MARYLAND DOT - STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION
MD 32 (SYKESVILLE RD) AND
BURNTWOODS RD

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|-------------------------------|----------------------------|--------------------------|-----------------------------------|
| DRAWN BY: ROB CICCHINI | F.A.P. NO. BW996M82 | TS NO. 3258A | SHEET NO. 2 OF 3 |
| CHECKED BY: R ZACHERL | S.H.A. NO. HOWARD | T.I.M.S. NO. F416 | |
| SCALE: NONE | COUNTY: 13003216.56 | LOG MILE: 4-30-03 | |